

Scenario of Home Automation in India

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ABSTRACT

Home automation has completely changed the vision of home appliances in the world. Globalization of home automation has now reached India, The technique is new, but it has very wide scope on the livelihood of basically handicapped people and for the cost efficient energy savings. In this paper we will discuss the current scenario of home automation in India, the affecting factors and problems in order to provide the better services at low cost.

General Terms: Embedded systems, Home Automation

Keywords: Arduino, Electronic and Electric devices, Raspberry pi, Home automation systems.

I. INTRODUCTION

Today, the work in the field of home automation has now increased in the world, now India has slowly started to work in this field, but in India home automation is the thing which is complex in many ways like its implementation, cost, and availability of providers.

According to survey conducted by 'Research & Market' has announced that Indian home automation market expected to cross 30,000 Crore INR by year 2022, but still there are some real basic barriers which are the challenges to the field.

In Initial level, home automation consist several parts, which interlines with our surroundings so we will discuss methodologies using parts, cost, problems and the providers in details.

II. LITERATURE SURVEY

Several recent implementation shows that the home automation is making the residential building more efficient.

Where all the parts of home automation are imported by other countries and the implementation techniques are according to their environment conditions, but in India this is different so Indian manufactures, providers are implementing the techniques which includes the cheap open source physical computing platform like Arduino, Raspberry Pi for better results and for meeting all the requirements for all classes of the buildings. There are still some challenges in India for the home automation which are-

- a. It still consider as a luxury service
- b. It is viewed as too complicated
- c. Lacking of service providers
- d. Less start up programmes
- e. Less technical assistance

- **It still consider as a luxury service**

In home automation industries most of companies offer home automation as luxury service where all things are provided with well finishing, good model and with good brand value thing. That's why on less cost effective solutions are unable to pay impact on Indian market.

- **It is viewed as too complicated**

Where majority of people use the traditional way for operating the systems and more of them are unconvinced by home automation due lack of information. They think it is complicated and it requires high end information of technology.

- **Lacking of service providers**

There are very few service providers which offer home automation, because of its cost most of them offer to in industrial area where its used. But due to less service providers it is not reaching to all people.

- **Less start up programmes**

In India, there are very less start-up projects are running in this field because they see less profit on commercial purpose. This automation is that kind of work which needs more start-up work. Start-up can boost the reach of this system. If start-up programme get involved this then more solutions will available for this system.

- **Less technical assistance**

If there a small provider provides system then they fail to give technical support due to lack of budget and less skilled workers.

III. METHODOLOGIES

There are various techniques to establish the home automation system. Some common techniques are:

A. Through Bluetooth Network

In this system, Bluetooth is applied for controlling electronic and electric appliances. The client is connected to Bluetooth module HS 06 or HS 05 through cellphone which is connected to arduino and arduino I/O pins controls relay board. The appliances are controlled through cell phone by an

application interface. This technology is cost effective and also secured. The advantage of this technology is that it can easily figure out available device. This is password protected so it provides high security. But its range is limited from 10 100 meters, 3 Mbps speed and 2.4 GHz, fail to provide energy conservation tips.

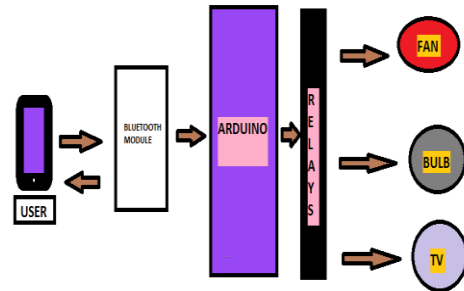
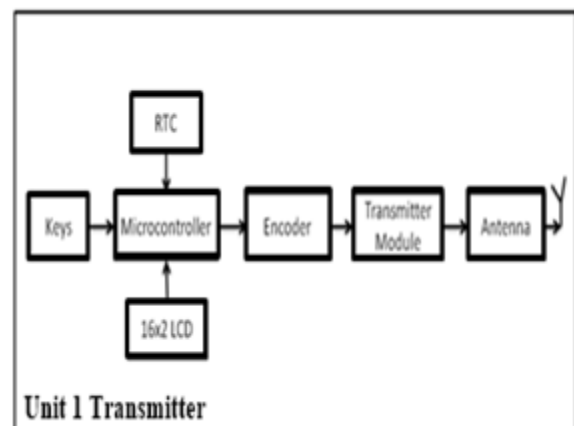


Figure 1. Bluetooth based home automation

B. Through Wireless Control System

In this system integration is made by combining Wi-Fi and Bluetooth technologies. It uses OSGi stands for Open Source Gateway Interface. All the appliances are connected via various different technologies network. It includes manipulations of web browsers, palmtop or handy PC and a centralised console. Some of technologies use speech based command service to control the devices. It is implemented on Linux environment. Its interoperability property is achieved by applying various standard protocols by the plug and play systems.



Unit 1 Transmitter

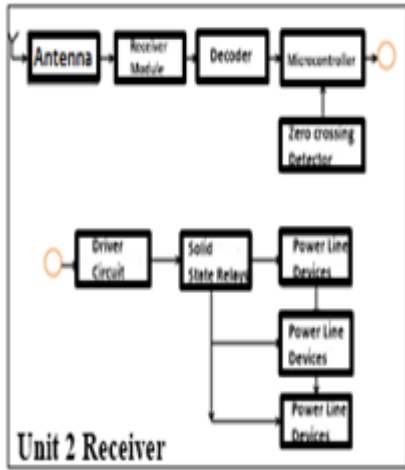


Figure 2. Wireless based home automation

C. Through ZigBee based Technology

ZigBee technology basically which is known for monitoring purposes of energy consumption and PLC (power line communication). For approximation and controlling it collects all the data and analyzes it then it try to cut the energy cost.

It based on IEEE 802.15 standard, secured by 12 bit symmetric encryption keys. It can transfer data over wide areas via intermediate peripherals by creating mesh network. If user needs a model which provides low data rate, maximum battery life and secured networking then he should opt for ZigBee.

The main component of this ZigBee home automation are- ZigBee, PIC microcontroller, Relays Home server, Sensors.

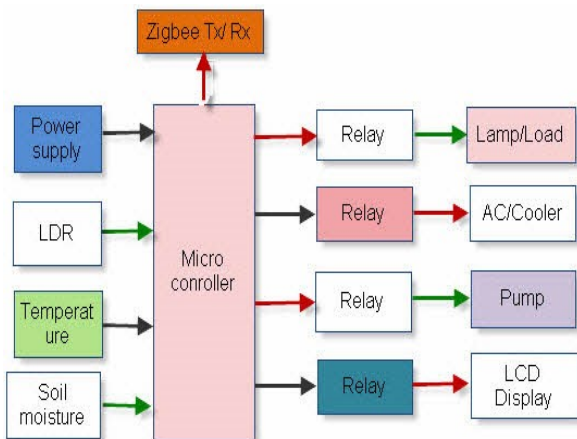


Figure 3. ZigBee based home automation

Table 1. comparative analysis of above systems

System	Initial communication	Access from	Units of devices	Cost	Speed	Real time
Bluetooth	Bluetooth and AT commands	Within 10 meters	No limit	Low cost	Fast speed due to proximity	Yes
Wireless network	Infrared, Radio waves	Varies accordingly to using waves	No limit	High cost	Slow speed	Yes
ZigBee	ZigBee and AT commands	Within 10 meters	No limit	Low cost	Fast speed	Yes

IV. CONCLUSION

As we have studied different views of automation in this paper. We have got that in India, Home automation is still facing various hurdles. Some techniques are being implemented for making home automation reliable and user friendly for the common people of India.

In order to provide basic service of home automation the system should be less expensive, easy to install, easy to operate so that less tech friendly user can easily use this, energy conservative, easy repairable, easy to integrate new devices and secured. Thus it can move to that commercial level where the start-up companies can develop their home automation programme for making it more effective.

V. REFERENCES

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